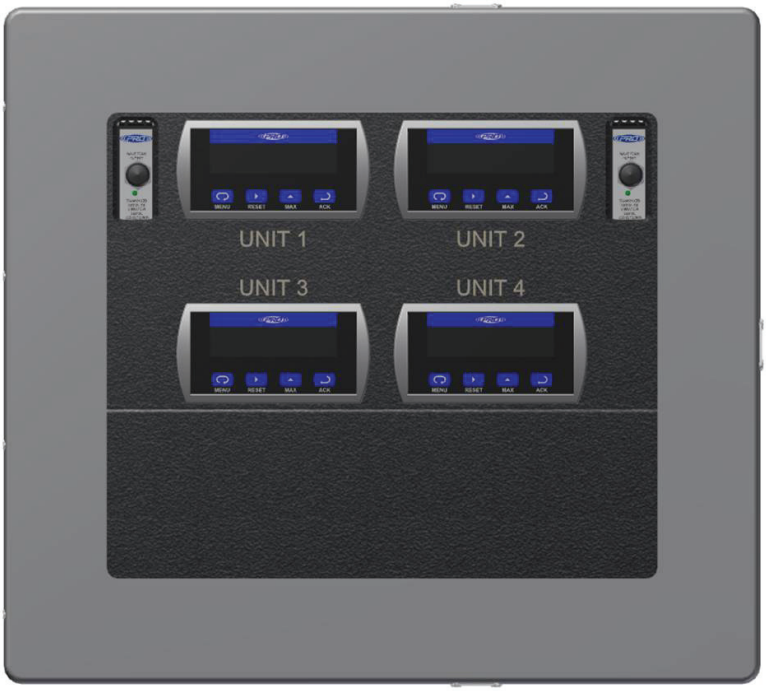
PROTECTION & RELIABILITY
OPTIMIZATION INSTRUMENTS
A CTC COMPANY

Product Manual

MNX10047 / REV B

MODEL PXR100



Dual Channel Proximity Probe Monitoring System

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Section I
Overview

Introduction

This document contains information on the operation, installation and maintenance of the PXR100 Series Dual Channel Monitoring System. This manual is an overview of the system and references the specific component manuals. User manuals are provided with the system for all configurable internal components.

Description

The PRO PXR100 Series system monitors a machines condition based on its dynamic vibration and DC gap voltage for up to 2 proximity probes. The system can be integrated into a circuit to shutdown a machine when preset vibration levels are reached based on the amplitude of the overall vibration within a selected frequency range. The system can detect a high vibration levels sensed by the proximity probes and will actuate relays based on alert and alarm set points. The system will indicate the instantaneous DC Gap voltage, dynamic vibration, and relay status at each channel through the display meters. A 4-20mA signal (based on the internal signal conditioners) is provided as an output for external DCS interfacing, PLC systems, or SCADA systems. The wave forms are obtained from the BNC jacks inside the enclosure, or can be wired from the provided screw terminals. A 4-20mA signal (based on the internal TX Series conditioner) is provided as an output DC gap and can also be obtained from the provided screw terminals.

PXR100 Series Model Selection

The PXR100 Series system has multiple options available to customize the Proximity Probes Vibration Protection & Relay system to specific needs. Below is a guide to help select which PXR Series system fits your specific requirements. (Figure 1)

PX R □ 0 0 – □ □ – □ – □

Display Type	Enclosure Type	Input Channels	Input Source	Enclosure Entry	Enclosure Exit
R = Relay with display	**1** = Fiberglass enclosure with window	**1** = 1 Channel **2** = 2 Channels	**P** = Proximity Probe	**A** = None **B** = 1 1/4" Conduit fitting for cable entry & 1/2" conduit fitting for power **C** = Cord grips (1 per ch.) & 1/2" conduit fitting for power	**A** = None **B** = 1 1/4" Conduit Fitting

Example Part Number: *PXR100-1P-AA*
Relay with display, fiberglass enclosure, 1 channel, proximity probe input

Figure 1. PXR Series Selection Guide

Section II
Installation

The PXR100 Series system is contained within a standard fiberglass junction box enclosure. Mounting brackets are provided for wall mounting the enclosure. (Wall anchoring screws are not included).

Cables enter and exit the enclosure through conduit fittings on the bottom of the unit. Proximity probes are to be connected to the drivers within the unit and all other input and output wiring is connected at the terminal blocks at the bottom of the unit. All outputs are routed through a 1.25" conduit fitting. The input proximity probes are routed through a 1.25" conduit fitting or cord grips (one per probe). A supply voltage of 85 to 265 VAC is needed to power the unit through the terminal block on the far right side of the enclosure. A ½" conduit fitting is provided for an AC power entry. (Figure 2)

NOTE: If there is no proximity probe connected to the driver, the output display on the process controller will read low or negative values. Be sure to power the system AFTER the proximity probes have been connected and properly gapped.

NOTE: If the display fails to output a value after the power has been turned on and the proximity probes have been connected and properly gapped, turn off the unit, wait several seconds and then reapply power. The internal electronics require some time to ramp up and settle before they are fully operational.

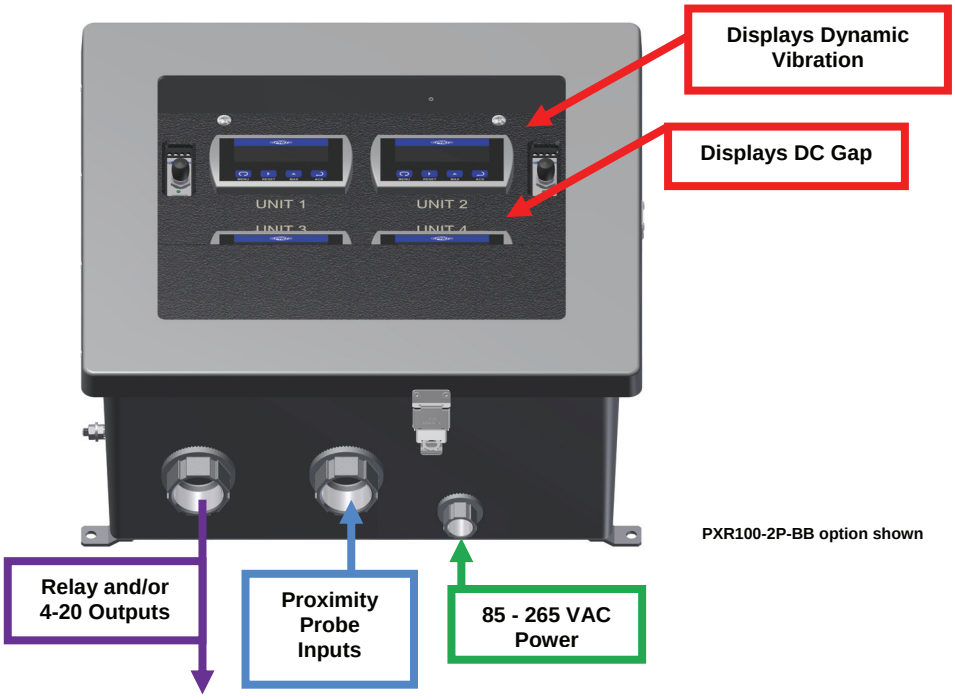

Figure 2. Cable Entry / Exit & Power

Section III
Operation

Configuring Relays

Units 1 & 3 display measurements made by channel 1 and units 2 & 4 display measurements made by channel 2. Unit 1 and unit 2 are configured to display the dynamic vibration for their corresponding probes and units 3 & 4 are configured to display the DC gap in mils for their corresponding probes. The inputs on the process controllers come from either the signal conditioner or the TX series conditioner. The process controllers are built with a specific full scale range and frequency band. The full scale range of the signal conditioners must be known in order for the controllers to display the correct vibration value. The signal conditioners will not display any vibration energy present at frequencies outside the filtering range. *Refer to PRO SC Transmitter User Manual for specific instructions on calibration and operation.*

Two relay outputs are available per channel. It is recommended that baseline and typical alarm values of vibration are known before setup of the process controllers is attempted. The relays provided by the process controller are highly configurable. *Refer to PD765 User Manual for detailed programming instructions.*

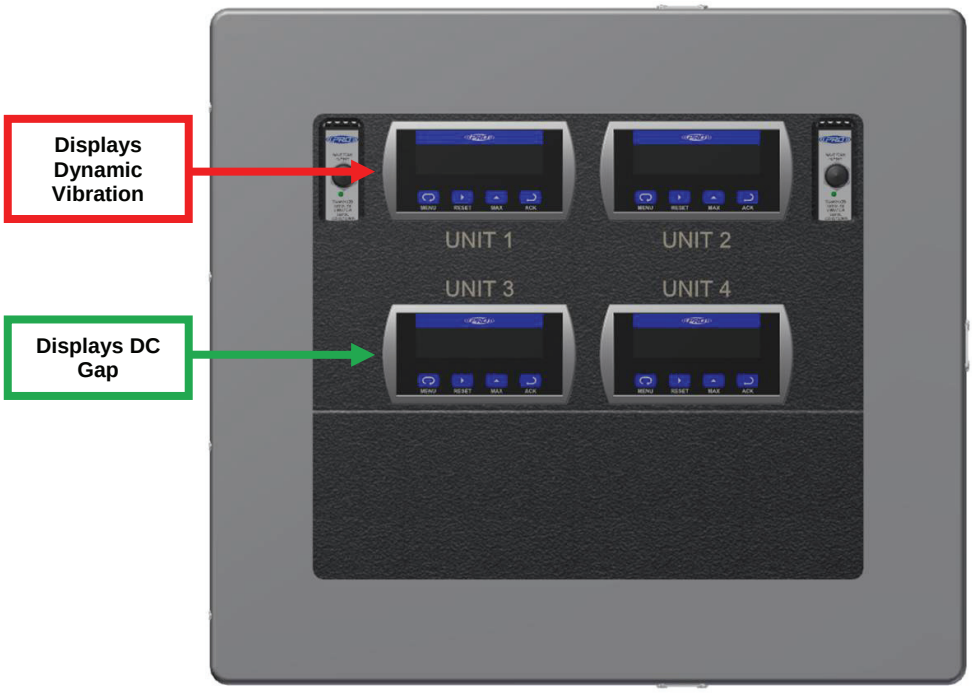

Figure 3. Display Settings

Factory Settings of Process Controllers:

Unit 1 & 2

- Input……..0 - 10 VDC
- Scale……..0VDC=0 / 10VDC=10
- Decimal Point……dd.dd
- Relay #1……....Latching with Clear
    - Set Point……..5.00
    - Reset Point……..1.00
    - Fail Safe #1……OFF
    - Fail Safe #2……OFF
    - Time Delay #1……...000
    - Time Delay #2……...000
- Relay #2……Latching with Clear
    - Set Point……..7.00
    - Reset Point……..1.00
    - Fail Safe #1……OFF
    - Fail Safe #2……OFF
    - Time Delay #1……...000
    - Time Delay #2……...000

Unit 3 & 4

- Input……4 - 20 mA
- Scale……..4mA=10 / 20mA=90
- Decimal Point……dd.dd
- Relay #1……OFF
    - Set Point……..0.00
    - Reset Point……..0.00
    - Fail Safe #1……OFF
    - Fail Safe #2……OFF
    - Time Delay #1……...000
    - Time Delay #2……...000
- Relay #2……OFF
    - Set Point……..0.00
    - Reset Point……..0.00
    - Fail Safe #1……OFF
    - Fail Safe #2……OFF
    - Time Delay #1……000
    - Time Delay #2……000

Refer to PD765 User Manual for detailed programming instructions.

Outputs

The PXR100 Enclosure offers multiple outputs for your convenience. These outputs are as shown below.

Terminal Block Number	Output Options		
1	Channel #1	(+) 4-20mA Vibration	
2		(-) 4-20 mA Vibration	
3		Relay #1 Vibration	NO
4			NC
5			COM
6		Relay #2 Vibration	NO
7			NC
8			COM
9		(+) 4-20mA DC Gap	
10		(-) 4-20mA DC Gap	
11		Relay #1 DC Gap	NO
12			NC
13			COM
14		Relay #2 DC Gap	NO
15			NC
16			COM
17	Channel #2	(+) 4-20mA Vibration	
18		(-) 4-20 mA Vibration	
19		Relay #1 Vibration	NO
20			NC
21			COM
22		Relay #2 Vibration	NO
23			NC
24			COM
25		(+) 4-20mA DC Gap	
26		(-) 4-20mA DC Gap	
27		Relay #1 DC Gap	NO
28			NC
29			COM
30		Relay #2 DC Gap	NO
31			NC
32			COM

Table 1. Output Options

Section IV
Maintenance

Once the system has been calibrated and installed it requires minimal maintenance. Basic checks to ensure system integrity should be made periodically.

Visual inspections should include examinations for the following but not limited to:

- The displays are operational
- No visible electrical burns or smoke inside the enclosure
- Enclosure hinges are free from rust and enclosure is securely latched
- No moisture or condensation build up inside the enclosure
- Enclosure viewing window is clean and internal components are clearly visible

To remove the main display panels to access the SC200 series signal conditioners and/or proximity probe drivers follow the steps below.

1. Start by removing the lower cover panel by removing the two phillips head screws the cover panel will hang by the tether cables.

Figure 4. Mounted Enclosure

2. Remove the four phillips head screws holding down the main panel, this panel will also hang by the tether cables.

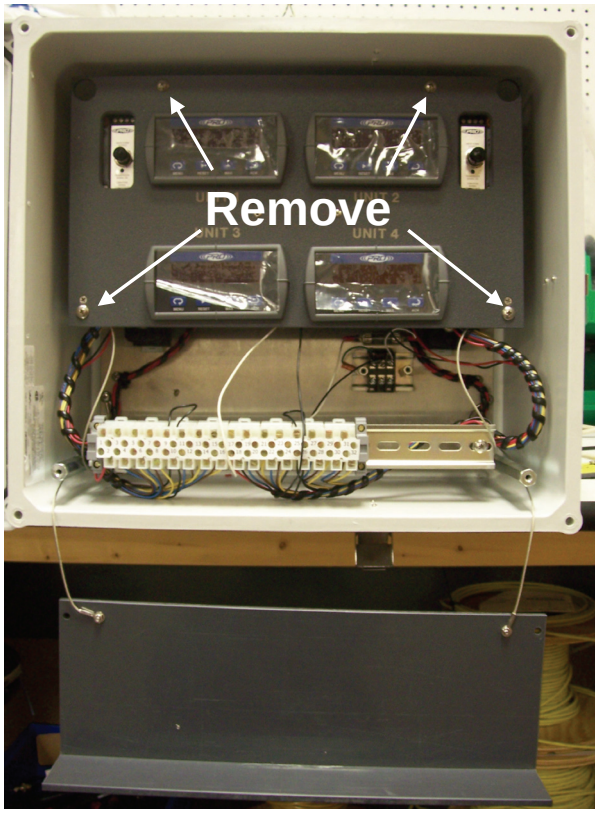

Figure 5. Lower Cover Panel Removed

3. The SC200 signal conditioners and proximity probe drivers are now accessible.

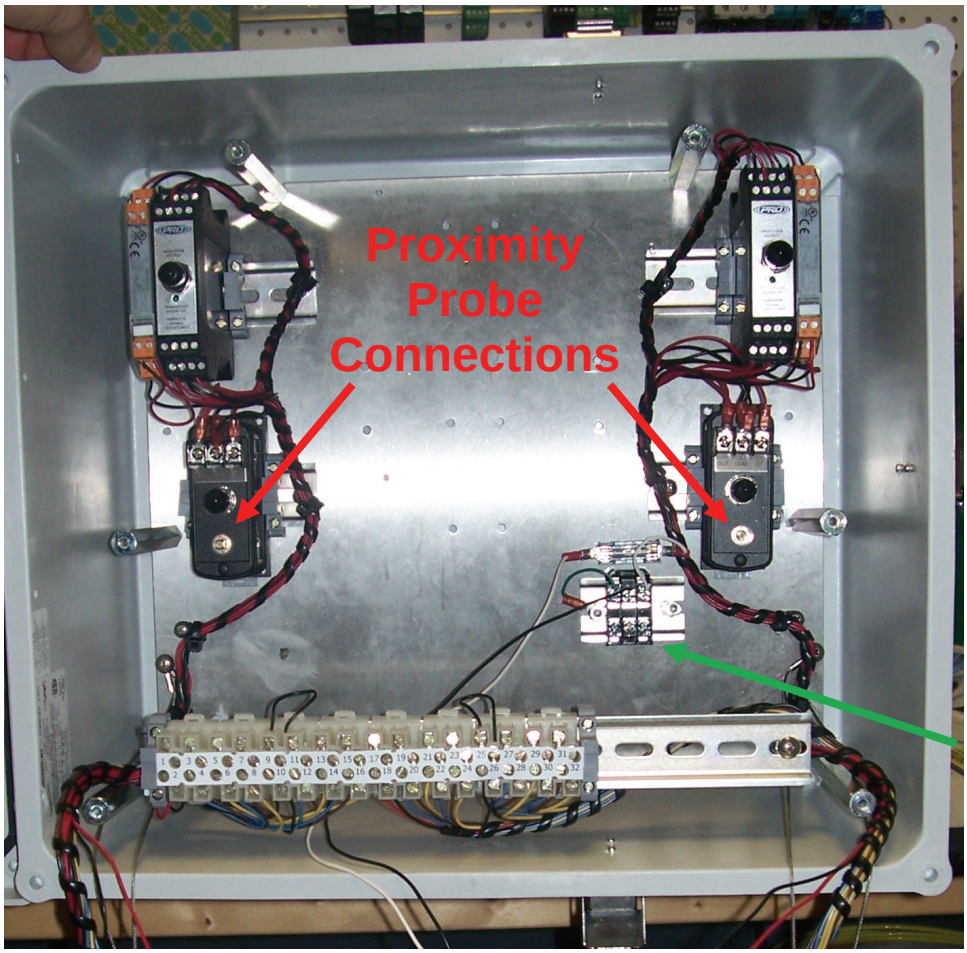

Figure 6. Display Cover Panel Removed

4. Connect proximity probes through the center 1.25 in conduit fitting on the bottom of the enclosure as shown in Figure 2.

Use care when replacing the main panel to prevent damage to the internal wiring.

For Proximity Probe Installation & Specifications, see MNX10031 – Model DX3301 / PRO DP/DD/DC 1001 Series Proximity Probe Product Manual

General

There are no customer replaceable parts. It should provide trouble-free continuous service under normal operating conditions.

Warranty

If any PRO product should ever fail, we will repair or replace it at no charge, as long as the product was not subjected to misuse, natural disasters, improper installation or modification which caused the defect.

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